

46-310 Removal and installation of manual steering

Data

Steering	Part No.	Steering version	Ball circuit pitch	Ratio in center position $i =$	Total ratio in center position $i =$	Remarks
760.1	123 460 38 01	LL				Steering shaft dia. 30 mm
	123 460 39 01	RL				
			9	22	22.36	
	123 460 62 01	LL				Steering shaft dia. 32 mm
	123 460 63 01	RL				

Oil grade/filling capacity

Transmission oil	refer to specifications for service products page 235	0.3 l
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Tightening torques

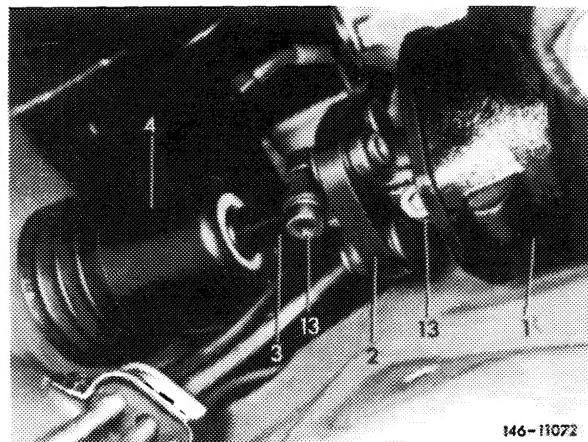
Locking screws for attaching steering to side member of frame		Nm
		70–80
Self-locking hex. nut to pitman shaft	M 22 x 1.5	140–180
	M 24 x 1.5	160–200
Hex socket screw to steering coupling		25
Castle nut or self-locking hex. nut on track rod and drag link		35

Special tools

Puller for ball joints of track rod on pitman arm, intermediate steering arm and steering knuckle arm	 11004-7226	186 589 10 33 00
Puller for ball joints of drag link on pitman arm and intermediate steering arm	 11004-7229	123 589 09 33 00
Puller for pitman arm	 11004-7227	100 589 04 33 00
Check screw for center position of steering	 11004-7249	115 589 10 23 00

Removal

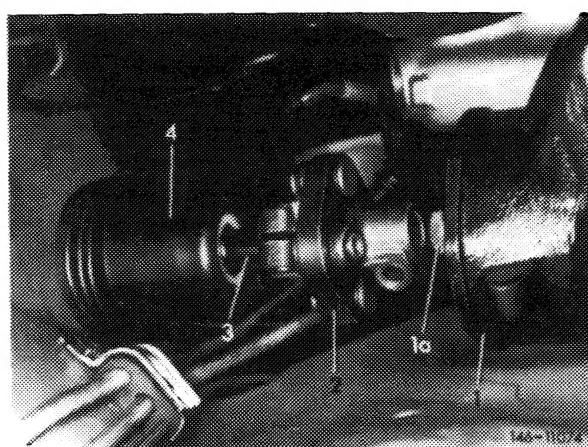
- 1 Unscrew both hex socket screws (13) from steering coupling (2).



146-11072

- 2 Slide steering coupling (2) on profile of lower steering shaft (3) (corrugated tubing) upwards until coupling is no longer in splining of steering worm (1a).

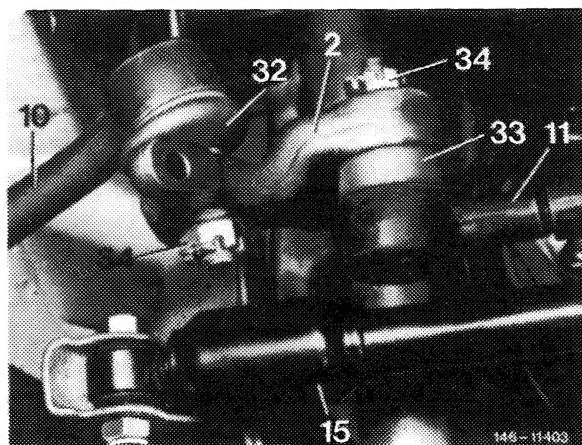
Note: Do not use force. If steering coupling is hard to move, slightly push parting joint apart with a screw driver.



146-11073

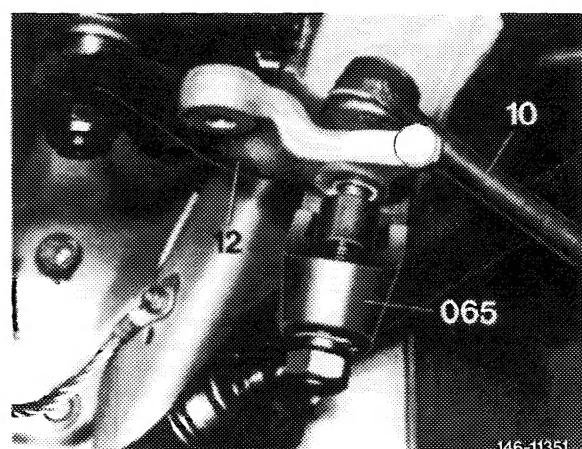
- 3 Uncotter castle nut of drag link and track rod. Unscrew castle nut or self-locking hex. nut.

Note: When the steering is exchanged and the pitman arm is not replaced, the drag link and the track rod can remain on pitman arm.



146-11403

- 4 Force ball joint of track rod (10) from pitman arm by means of puller (065).

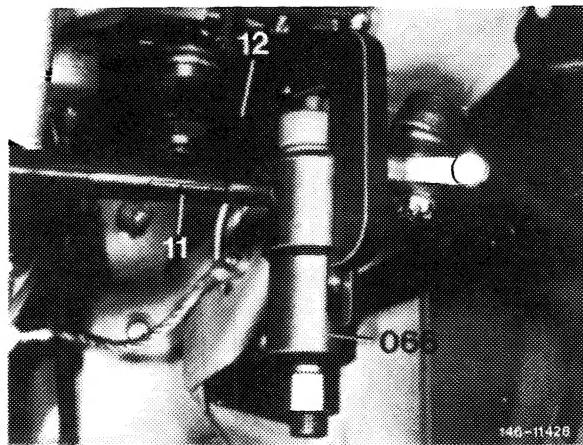


146-11351

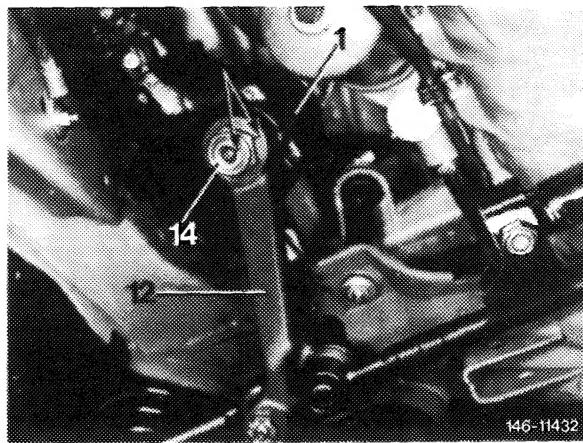
5 Force ball joint of drag link (11) from pitman arm by means of puller (066). On 1st version of drag link, pay attention to plastic covering ring and to sealing washer.

Note: To prevent damaging rubber sleeve on drag link 2nd version, force drag link off only with modified puller 123 589 09 33 00.

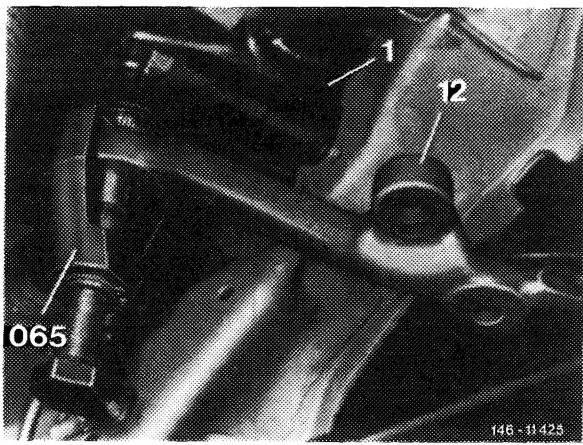
Use puller 123 589 00 33 00 only if puller bell has been refinished.



6 Unscrew selflocking hex nut (14) from pitman shaft.



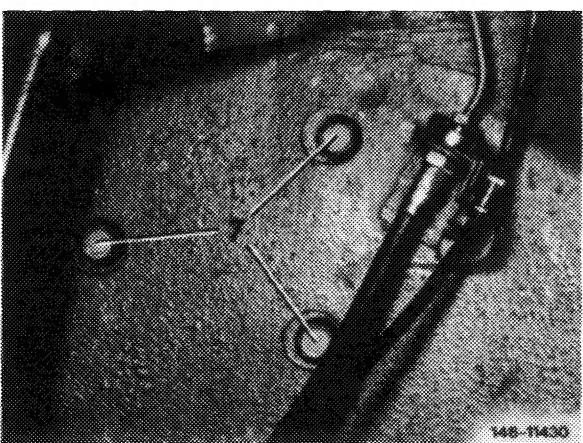
7 Pull pitman arm (12) from pitman shaft with puller (065).



8 Unscrew locking screws (7) holding steering to side member of frame. Then remove steering in downward direction.

Note: Release steering only when steering coupling no longer is in steering worm, since otherwise the lower steering shaft (corrugated tubing) may be damaged.

9 Remove steering coupling from steering shaft, check for wear and replace, if required.

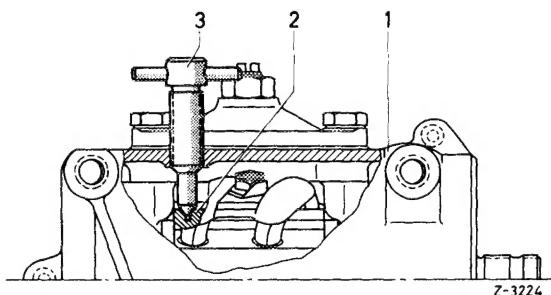


Installation

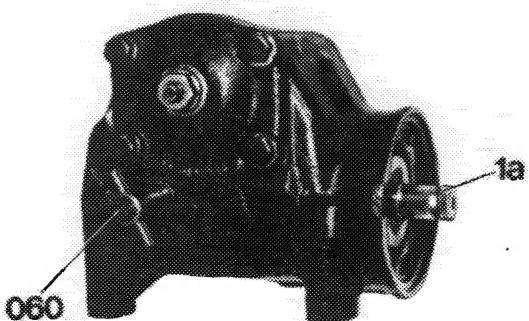
10 Slip steering coupling completely on profile of lower steering shaft.

11 Unscrew closing plug from housing cover, check oil level and fill specified oil into steering, if required.

12 Turn steering to center position. Center point in steering nut (2) should be accurately under housing bore.



13 Screw center position check screw (060) into steering housing and locate steering nut.

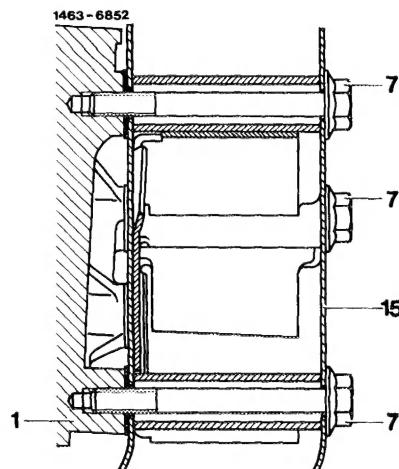


148-11346

14 Attach steering with three new locking screws (7) to side member of frame. Tightening torque 70–80 Nm.

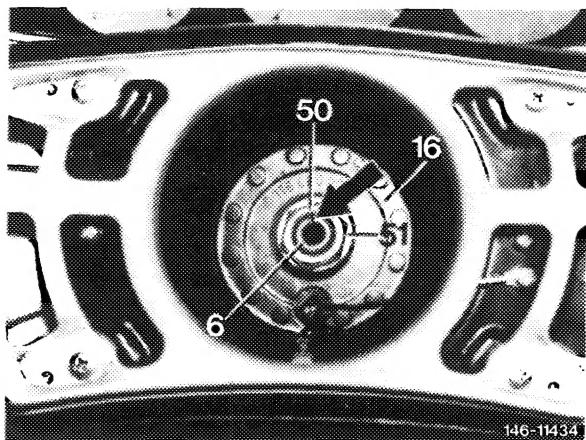
Attention!

Be sure to renew locking screws each time.



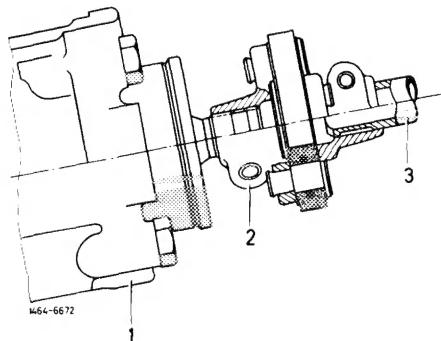
15 On vehicles with steering wheel 1st version (fastened with hex. nut) remove pad from steering wheel, turn steering shaft in such a manner that the restoring cam for combination switch is in center of cutout of jacket tube lining, with the mark (arrow) on upper steering shaft (6) pointing in upward direction.

Note: On vehicles which are provided with restraining system (airbag and belt tensioner), pay attention to notes in 46–610, section B.

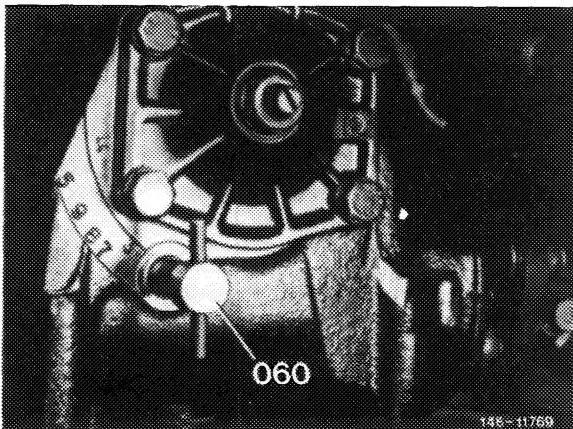


16 Slip steering coupling on splining of steering worm.

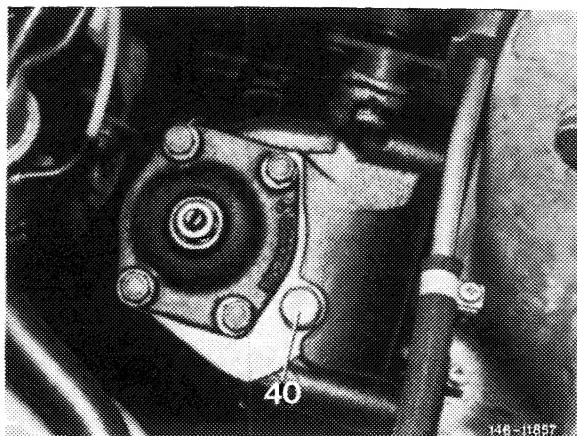
Note: Do not use force. Due to the structural design the corrugated tubing of the lower steering shaft is relatively sensitive against laterally applied forces.



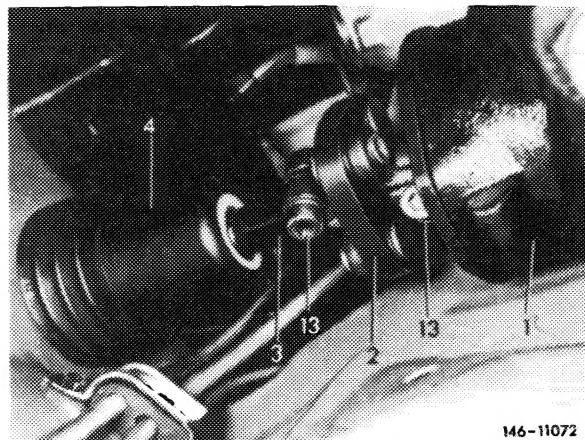
17 Unscrew center position check screw (060).



18 Screw closing plug (40) into steering housing.



19 Screw both hex socket screws (13) into steering coupling and tighten to 25 Nm.



146-11072

20 Insert pitman arm into splining of steering shaft while watching markings on lever and pitman shaft (arrows).

Note: Pay attention to code No. on pitman arm.

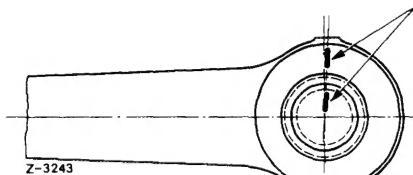
1st version, steering shaft dia. 30 mm

(ball point position $117^{+4.5}_{-2.5}$)

2341 manual steering, lefthand steering

2342 manual steering, righthand steering

(together with intermediate steering arm 123 463 2610 lefthand steering or 123 463 2710 righthand steering).



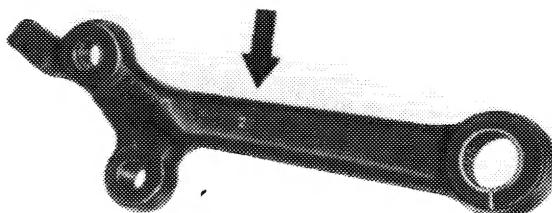
2nd version, steering shaft dia. 30 mm

(ball point position $121^{+4.5}_{-2.5}$)

2348 manual steering, lefthand steering

2349 manual steering, righthand steering

(together with intermediate steering arm 123 463 3210 lefthand steering or 123 463 3310 righthand steering).



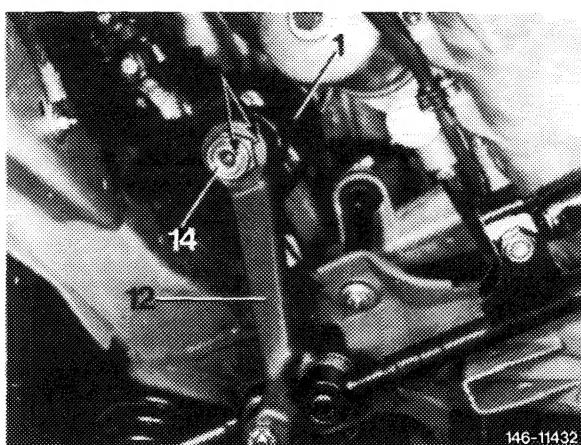
146-11417

3rd version steering shaft dia. 32 mm
(ball point position $121^{+4.5}_{-2.2}$)

2353 manual steering lefthand steering (LL)

2354 manual steering righthand steering (RL)

(together with intermediate steering arm 123 463 3210 lefthand steering or 123 463 3310 righthand steering).



146-11432

21 Attach pitman arm with new self-locking hex. nut to steering shaft. Tighten hex. nut as follows:

M 22 x 1.5 (width over flats 32) = 140–180 Nm

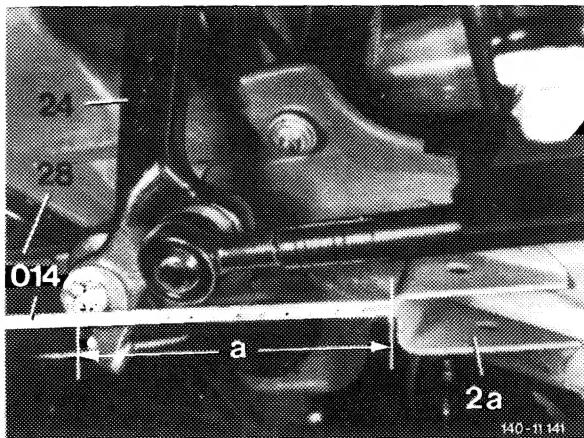
M 24 x 1.5 (width over flats 36) = 160–200 Nm

Attention!

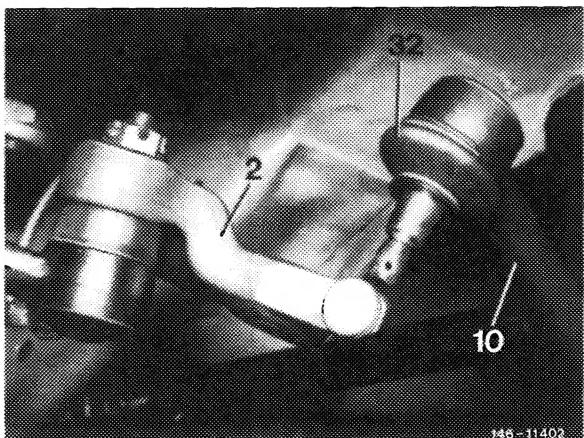
Be sure to renew self-locking hex nut each time.

22 Check permissible steering lock by measuring reference dimension between pitman arm and intermediate steering arm and stop bracket of frame cross member (40–320).

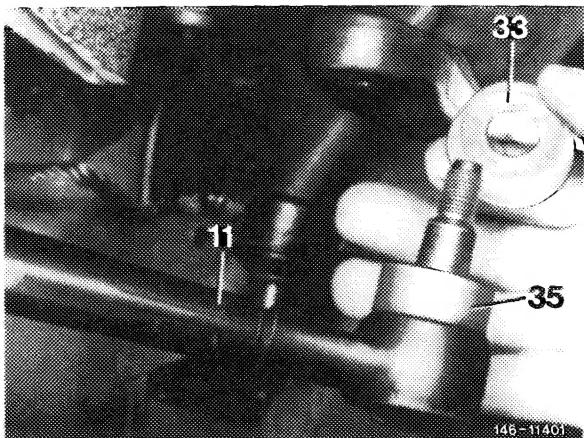
Note: Steering stops are on pitman arm and intermediate steering arm. At max. steering lock the respective lever should rest against stop bracket (2a) of frame cross member.



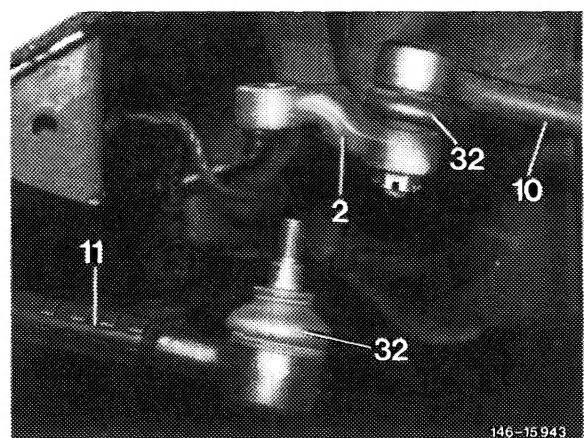
23 Check rubber sleeve (32) on joint of track rod. If sleeve is damaged, check joint for wear and replace, if required (46–540).



24 On drag link 1st version, check joint of drag link for wear and replace drag link, if required. Place sealing ring (35) and plastic cover (33) on ball joint.



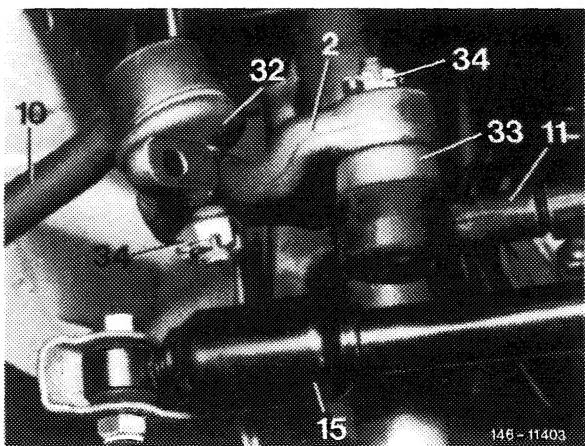
25 On drag link 2nd version, check rubber sleeve (32) on joint. If sleeve is damaged, check joint for wear and replace drag link, if required (46–550).



26 Fasten track rod and drag link to pitman arm.
Tightening torque 35 Nm — reference value.

Note: The track rod 1st and 2nd version is fastened to pitman arm by means of a castle nut and is secured by a cotter pin. The 3rd version is fastened by means of a self-locking hex. nut.

The self-locking hex. nut must be replaced on principle.



27 Fasten pad, if previously removed, to horn carrier of steering wheel.

28 Check wheel adjusting values on front axle (40–320).

